

Effects of Physical Changes in Aging  
on Communication: An in-service training guide

An Honors Thesis (ID 499)

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A handwritten signature in cursive script, reading "Richard Oster", is written over a horizontal line.

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## FORWARD

Within the population of the United States, no group is experiencing a more rapid rate of increase in number than the elderly. The Fact Book on Aging (Harris, 1978) indicates a daily increase of persons 65 years and older by approximately 1,500 people. This has resulted in an increase of this group to approximately 11.5% of the total population. In 1900 the over 65 age group constituted only 4% of the population. This steady increase is expected to continue due to higher life expectancy rates and an aging baby boom generation.

These figures point to a need for expanded education concerning the aging process, both normal and disordered. Professionals in many fields, in particular health care, will be faced with clientele demonstrating special problems and concerns due to aging. One such field is that of communicative disorders. Traditionally speech-language pathology and audiology, while taking into account the needs of the elderly, has focused primarily on children and adolescents. More and more the profession is becoming aware of the responsibility it has toward the elderly with communicative disorders.

This responsibility does not stop with recognizing the benefits of providing speech-language therapy, and audiological testing and evaluation to these individuals. While these needs are becoming increasingly more evident, there is an additional responsibility emerging. This is the respon-

sibility of providing education about changes in communication due to the physical, psychological, and sociological effects of aging.

This insight concerning the process of aging is necessary for professionals in the field of speech-language pathology and audiology so that they may serve to share those concerns with others regarding communication in the elderly. Those who the speech pathologist or audiologist may be called upon to inform or educate include the elderly themselves, their family members, professionals from other disciplines and nonprofessionals in jobs requiring daily contact with the elderly.

This paper is designed to be used by the speech-language pathologist or audiologist as a reference and training tool when called upon as a professional for information concerning communication and its disorders in the elderly. The background and training of the individual or individuals to whom the information is being presented should of course be taken into consideration. Since most people will have little or no background in this area, the information is presented in a form appropriate for use with the non-professional.

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## INTRODUCTION

Often it is difficult to realize how much we rely on something until we no longer have it readily available. Only then do we appreciate the true value of something we have taken for granted. For most of us this is the way we treat our ability to communicate with others. We have no difficulty getting information from our environment, processing this information, and then transmitting a response back to the environment. The way this is done generally is to receive information through the senses, process the information in the brain, and respond through speech. Though it sounds simple, this process is indeed highly complex.

Almost every part of our body is involved in the receiving, processing, and transmitting of messages. For example, the respiratory system with its associated muscles and structures provides the energy through which speech is produced. The structures of the oral cavity act upon this energy and shape it into a variety of speech sounds. The ears and eyes as well as the entire surface of the skin are receptors monitoring the environment for stimuli which may require a response. The entire body is used through posture and expression to convey messages through what we recognize as body

English. When there is a breakdown anywhere along this chain, the result is a breakdown in communication.

We have all experienced this at some time. When we have laryngitis or an unresponsive mouth and tongue after a visit to the dentist, we experience a deficit in the output phase. This may produce mild frustration and an inconvenience for a time, but the effects are only temporary. However, for many people a reduced ability to communicate is something they have to deal with every day. This is particularly true for many in the elderly population.

Just as there are changes that come about through every other stage of life, so there are changes that come about as a result of the aging process. Some of these changes are bound to have an affect upon communication since it is such an integral part of our lives. These changes that come about can be placed into three general categories: physiological, psychological, and sociocultural. Changes in these areas, acting alone or collectively, may have a substantial impact upon the individual's lifestyle and his interaction with others (Jacobs-Condit, 1984).

It is especially important to note that an interaction of these factors may be operating. For example, a physical change which limits activities often results in a limited opportunity for social contact thus reducing communicative opportunities. Even if a physical disability is not substantially limiting, a perception by the affected individual of reduced capabilities and self-worth may result in self-imposed

reductions in communicative opportunity. Likewise poor psychological adjustment to aging as well as anxiety about actual or perceived decline in physical or mental ability can lead to withdrawal from situations requiring communication.

However, it is not always the elderly person who is the one withdrawing from social contact due to real or perceived problems. Sometimes it is society that withdraws from the elderly because of persistent myths and prejudices about aging. As a society focused on youth, we continue to view the elderly population as a homogeneous group. A group which is on the whole, sick, frail, and senile or destined to be so. This is far from the actual case. Those over 65 constitute a widely varied group with a wide range of abilities as well as some disabilities (Harris, 1978).

If we are going to dispel these myths and reduce the affects of aging on communicative ability, ". . .educational programs and therapeutic approaches must exist that are specially designed for appropriate intervention with older persons within the context of the aging process itself" (Jacob-Condit, pg. 171). Education is necessary concerning the three areas of change--physical, psychological, and socio-cultural; the affects of each on communication; and ways to increase communicative effectiveness within the context of these changes related to the aging process. This paper will focus on the physical aspect and ways to increase communicative effectiveness when a physical change due to aging affects communication.

## PHYSICAL CHANGES OF AGING AFFECTING COMMUNICATION

Although it is true that the likelihood of experiencing illness increases as a person ages, the stereotype of the elderly as frail and sick is not an accurate one. There is instead a great deal of variability in health status among those over 65. Ninety-five percent of this group lives in noninstitutional settings and over 80 percent report they experience no limitations in mobility and have not required hospitalization in the past year (Harris, 1978). This is also supported by Butler (1975) who indicates in Why Survive? Being Old in America that most of the older population is not senile, forgetful, or confused and that a relative few suffer from physical pain or mental illness.

However, the older population still has higher rates of chronic conditions than the younger population. Although the majority rate their health as "good" or "excellent," the percentage of persons with some degree of limitation is substantial (Harris, 1978). Many of the conditions that arise as a result of aging have a detrimental affect upon communication. Some of the most prevalent of these can be broken down into three categories--sensory disorders, neurological disorders, and head and neck pathologies.



## Sensory Disorders

Communication is a two-way interaction. It involves both input and output. All input information a person receives is assimilated through the senses. When there is a physical alteration resulting in a reduced ability to receive information, a sensory disorder exists. Sensory disorders are among the most wide spread of all communication disorders. The most common of these are hearing and vision impairments.

### Audition

A hearing loss causes great changes in the life of the elderly person. It will affect the extent to which he or she has contact with others and ultimately can affect the mental and, physical health of the individual. Not only do the hearing impaired lose contact with others in a social context, but they also lose contact with the world around them. Many elderly who lack social outlets keep in contact with the world through television, radio, and movies (Jacobs-Condit & Ortenzo, 1984). Often these individuals with an acquired hearing loss withdraw even more from society to avoid having to communicate with others. This decline in communication is a result of psychological reactions to the hearing loss. A sense of personal frustration induces stress which leads to the isolation strategy many hearing impaired elderly adopt (Hull, 1978).

Obviously there is a major need to identify these individuals and provide rehabilitation to those with a significant communicative deficit. The urgency of this statement becomes more apparent when the size of the elderly hearing impaired

population is revealed. For a graph of the percentage of person's in the U.S. with hearing loss see Figure 1 in appendix A, page 30. Twenty-three percent of those 65 to 74 have a hearing impairment, and 40 percent of those over 75 have a hearing loss. Since there are approximately 26 million citizens in the United States 65 or older, the size of the impaired elderly population is large (Corso, 1985). Indeed, presbycusis, defined as a progressive loss of auditory acuity as a result of the aging process, ranks second only to arthritis among chronic conditions that affect physical health in the elderly (Harris, 1978).

There is however, help for these individuals. Studies have shown that the effective use of a hearing aid can enhance the self-concept of the older individual (Corso, 1985). First, before it can be decided that a hearing aid is appropriate, the severity and type of loss must be determined.

The severity of the loss is measured in decibels. A loss of 0-20 dB is considered normal, 21-40dB is a mild loss, 41-55dB is a moderate loss, 56-70dB is a moderately severe loss, 71-90dB is a severe loss, and 90dB plus is a profound loss (Jacobs-Condit & Ortenzo, 1984). The type of hearing loss is relative to the site of blockage or damage in the ear.

A conductive loss involves the outer or middle ear (for a diagram of the ear see Figure 2, Appendix A, page 30). Typical causes of a conductive loss include a build-up of wax, ear infection (otitis media), or otosclerosis which is a formation of spongy bone affecting the three bones of the

middle ear and causing a loss of hearing due to an inability of these bones to move. A conductive loss is often treatable by a physician. A sensori-neural loss results from damage to the inner ear, the cochlea, and/or the neural fibers of the VIII nerve and is not medically treatable. Causes of sensori-seural loss include presbycusis, heredity, trauma, tumors, noise damage, drug damage, and viral and bacterial illness. Other types of losses are the mixed loss, which is a combination of conductive and sensori-neural, and central auditory disorders that result in an inability to understand spoken language.

Only after the severity, type, and cause of the loss has been determined and the patient has seen a doctor should a hearing aid be fitted. As previously mentioned, a hearing aid can do much to bring the elderly person out of the isolation he often creates for himself. There are also other augmenative devices that can serve to bring the hearing impaired back into a more natural communicative environment. A variety of devices for television and radio involve a microphone placed by the sound source that then transmits the amplified signal directly to the hearing impaired individual's ear. Another option is closed captioning available for some television programs. This allows those who buy the closed caption unit to see printed across their screen the dialogue of the program they are watching, if it is transmitted with closed captioning. For a list of augmenative communication devices, see Appendix B, page 35.

Once an individual is fitted with a hearing aid he should receive help for a period of time to learn to use it properly. Auditory training with the speech and hearing therapist helps the hearing impaired person adjust to his new aid and learn to use the hearing he has left most effectively. Another option is speech reading training. In speech reading the individual learns to see the vowel and consonant lip shapes and put them together with what he hears to get a clearer picture of speech. This is particularly useful since many consonant sounds are high frequency or higher pitched sounds and many of the elderly lose their hearing in these high frequencies (Pepper, 1982).

Hearing loss is not a simple matter. It can be produced by a wide range of factors and produces many varied psychological and sociocultural affects in the elderly individual. Care should be taken to assess not only the hearing loss, but also the other affects the loss has had on the individual.

#### Vision

Third in prevalence among the elderly behind arthritis and hearing impairment, is impairment of vision. After the age of 45, the prevalence of defective visual acuity, which is defined as less than 20/40 vision, increases steadily. Within the 75-79 age category only 15 percent of persons have 20/20 vision-even with correction (Harris, 1978). These changes in visual acuity are due to aging of the structures of the eye (for a diagram of the eye see Figure 3, Appendix A, page 31 ).

Due to the aging process, the retina becomes less flexible which decreases its sensitivity to light. This is related to vascular changes and decreased oxygen supply to which the retina is very sensitive. As a result, rods and cones, which are the receptors of light in the retina, are less able to adapt to changes in light. This may be the reason for increasing difficulty with night vision many experience as they grow older (Jacobs-Condit & Ortenzp, 1984).

The lens of the eye also undergoes changes becoming yellowed as well as harder and less flexible. Both of these alterations of the lens reduce and change the light which reaches the retina. However, despite the fact that less light is reaching the retina, the elderly require almost twice as much illumination as younger people. The result of the yellowing of the lens also includes a lessened ability to discriminate blue, green, and violet, because the yellow lens absorbs the blue-green color wavelengths. This results in a heightened susceptibility to glare--a problem magnified by need for increased levels of illumination. Reduced ability to focus and view close objects is the result of the decreased flexibility of the lens. This produces a condition known as presbyopia, more commonly referred to as "farsightedness" or the reduced ability to see things as they get closer to the eyes (Jacobs-Dordit & Ortenzo, 1984; Pepper, 1982).

Perhaps because of a certain familiarity we all have with slight visual impairments--we all know many people who

have corrected vision—we often tend to underestimate the affect visual impairment may have upon the elderly individual. However, we should realize that as a result of visual impairment, serious communication problems may arise.

People depend on their vision for receiving and processing a great amount of information about the world. A person's daily living activities involve being able to master various chores that involve sight—sewing on a button, getting dressed in the morning, matching colors for clothes, finding utensils to clean teeth or brush hair are all dependent on vision. (Pepper, 1982, pp. 304-305)

Certain changes can be made to lessen the affects of the visual impairment and thus reduce consequences for communication. Some, such as glasses, higher wattage light bulbs, and the use of night lights, may easily correct the situation. In other cases more extreme measures may be necessary. For example, the individual with night vision problems may have to alter his lifestyle and no longer drive at night. Changes such as this will produce a variety of reactions. Some will cope well while others resent dependence upon friends and family members and withdraw instead of asking for help. Pepper (1982) points out that people with lost or impaired vision are often self-conscious and feel slow or awkward. Thus, they hesitate to get involved in new activities.

An environment of patience, encouragement, and stability is necessary in helping the visually impaired cope with their unique problems. They should not be rushed, but rather given time to adjust to new environments and situations. This will build confidence as they learn what to expect. As much as

is possible, things within the environment should be left in the same place so that he knows where to find things. Whenever changes must be made, the visually impaired individual should be informed to maintain his security and ability to function.

### Neurological Disorders

Communicative disorders involving the reception, organization, perception, and expression of language may be induced by neurological disorders or impairments of the Central Nervous System. These can be divided into those with a sudden onset such as cerebrovascular accidents, and those that are progressive neurological impairments such as Parkinsonism, etc. Prevalence figures of certain disorders in each of these categories among the elderly warrants their inclusion in this paper. Thus stroke under sudden onset and senile dementia including Alzheimer's disease as an example of progressive neurological impairments will be discussed.

#### Stroke

"Aging is the single greatest risk factor in stroke," (Hollard & Bartlett, 1985, p. 141). Two and one half million people in the United States today have had strokes; every year 500,000 new stroke cases are reported (Broida, 1979). Almost 75% of these strokes occur in those 65 years and older (Maurer, 1984). Hollard and Bartlett (1985) estimate that almost 10 percent of the population over 75 years of age has suffered a stroke. Given these figures the link between stroke and aging can not be ignored. For a graph of age and prevalence of stroke see Figure 4, Appendix A page 31. But what exactly

is a stroke, what causes it, and how does it affect communication in the elderly individual?

The technical name for stroke is cerebral vascular accident, often referred to as CVA. The name can be broken down to understand better what a stroke is. "Cerebral" refers to the brain. This is where the stroke occurs. "Vascular" refers to blood vessels. Through an "accident" to the blood vessels the blood supply to the brain cells is cut off. The most common cause of CVA is blockage of one of the arteries supplying a section of the brain with blood. This may result from a thickening of the walls of the artery and thus a narrowing of the channel through which blood flows (thrombosis), or it may result from a traveling clot (embolism) that blocks one of the arteries. The stroke may also be caused by cerebral hemorrhage—a bursting of an artery in the brain. In this case the damage to the brain results not only from lack of nourishment to the section of the brain supplied by the artery, but also from the force of the bursting and the accumulation of blood that floods the area (Broida, 1979).

The end result of a CVA is damaged brain cells. The type and extent of the communicative disorder which results from the stroke is determined by the location and number of these damaged brain cells (Hintgen & Mueller, 1983).

In the majority of people, speech and language centers are located in the left hemisphere of the brain. Therefore, damage to the left hemisphere often, but not always, causes a communicative disorder associated with stroke called aphasia.



Aphasia is a disorder characterized by complete or partial impairment of language comprehension, formulation, and use. Brodia (1979, p. 18) lists seven language areas that aphasia may include:

1. understanding the speech of others
2. speaking
3. reading
4. writing
5. using gestures that are understandable to others
6. understanding gestures of others
7. arithmetic

The communicative disorder may be so extensive as to include all of these areas, especially early after onset, or may include only one. The aphasic may have primarily a problem of output or production of language, or he may have a problem of input or reception of language. Most often, however, he will demonstrate symptoms that do not fall clearly into these categories. "Such input-output dichotomies are artificial and rarely, if ever, encountered in clinical populations" (Hintgen & Mueller, 1983, p. 25).

Several other symptoms also may result as a consequence of the stroke. Many of these may have an impact upon ability to communicate. The most common and recognizable of these is hemiplegia, or a paralysis of one side of the body. The side affected will be opposite the side of the brain that is damaged so a right hemiplegia is common in the aphasic. The right arm and leg as well as facial muscles may be affected. Visual defects that result act much like the paralysis in that one side is affected. Aphasic patients usually have right visual

defects and thus can not see objects in the right visual field. Other symptoms include dysphagia or swallowing difficulties, seizures or convulsions, short term memory deficits, fatigue, depression, lack of control over emotion and irritability (Hintgen & Mueller, 1983).

While all of these symptoms hold possible consequences for communication, two symptoms that often accompany aphasia have particular affects on speech output. These are dysarthria and apraxia. Dysarthria involves a paresis (weakness) or paralysis of the speech producing mechanism. This results in slurred speech, a weak voice, articulation errors, and nasality (Hintgen & Mueller, 1983). Apraxia of speech does not involve paresis, but rather an inability to remember how to place the tongue, lips, and mouth in the correct positions to form words, phrases, and sentences (Broida, 1979).

Any of the above symptoms may, in some cases, accompany aphasia. When this happens the resulting communication disability is compounded. Examination of these other symptoms may help ultimate potential for recovery in that they may point to which additional parts of the brain suffered damage from the stroke. Other important factors in determining recovery potential include: the cause of the stroke, extent of the brain damage, and physical, mental, and emotional well-being (Broida, 1979).

Most aphasics do improve. However, only a small number will completely recover. The first six months after the CVA is the critical period. During this period of what is called

"spontaneous recovery," large gains in the restoration of language are often made by aphasics who are given good care. This does not mean that speech and language therapy is not necessary. On the contrary, therapy during this time aids and enhances progress.

The cause of this spontaneous recovery period is probably a reduction in swelling of tissues in the brain. Swelling temporarily impairs some of the brain's function, but as it goes down, sections of the brain not permanently damaged due to lack of oxygen resume functioning. However, it should be realized that after spontaneous recovery has come to an end, patients often plateau and further progress requires extensive therapy.

Understanding of this phenomenon of spontaneous recovery and plateau is helpful for the care givers and family trying to help the aphasic reach full potential. Factors that help increase the likelihood of recovery, besides speech and language therapy, are good physical condition, a warm, loving, communicating environment, and freedom from stress. The aphasic should be provided with a lot of communication experience. It should also be noted that speaking slowly and carefully significantly enhances the likelihood that the aphasic client will understand what he hears. Even if he understands little that is said to him, the important thing is that he is spoken to and he feels a part of the family or group (Broida, 1979).

### Parkinson's Disease

Parkinson's disease is a degenerative and progressive nervous system disease that affects older people in particular. At least half of those suffering from Parkinsonism are over 70 years old (Scott et al., 1985). The disease in general progresses slowly over a decade or more (with some variations) and produces increasing disability and finally death from respiratory complications. It can be managed with drug therapy which reduces some of the major symptoms such as tremor, but the drug side effects can be a major problem.

The ultimate cause of Parkinsonism is a degeneration and loss of neurons in a specific area of the brain called the substantia nigra. This leads to a reduced ability to synthesize a hormone involved in brain function called dopamine. In normal aging the loss of these nerve cells and of dopamine synthesis is about 50 percent of normal young adult levels. However, in Parkinson's disease the loss is 80 percent in mild cases, to 90 or 100 percent in severe cases. This indicates that the aging process itself is unlikely to be the sole cause of Parkinsonism (Scott et al., 1985).

In some cases the cause of the disease can be traced to drugs used to treat other conditions. Drug-induced Parkinsonism is becoming increasingly common in the elderly. Most of these patients will show a regression of the Parkinsonism once the drug is withdrawn, but this may take up to two years (Scott et al., 1985). However, many cases of the disease are of unknown cause (idiopathic Parkinson's disease).

The most common signs which make up the diagnosis of Parkinson's disease are tremor, rigidity of muscles, and bradykinesia which is a slowness and poverty of movement. The tremor is worst at rest and disappears during movement or sleep. Bradykinesia produces the mask-like face characteristic of the disease. Posture is also affected producing a hunched-over appearance. Another complication which has been seen as one of the most embarrassing, upsetting, and isolating aspects of Parkinsonism is that of speech difficulties (Scott et al., 1985). Oxtoby (1982) found 49 percent of the Parkinson's patients he studies to have speech disturbances to a significant degree.

The speech difficulty in Parkinson's disease is called hypokinetic dysarthria. It results from the reduction in movement ability and is characterized by monotonous pitch and loudness, reduced stress, imprecise articulation, and short rushes of speech (Nicolosi et al., 1983). Drug therapy for the disease does not correct the speech problem and in fact may in some cases adversely affect the speech (Scott et al., 1985).

Due to the degenerative nature of the disease, speech therapy has traditionally been regarded as unrealistic for patients with Parkinsonism. This attitude is changing according to Scott et al. (1985) and speech therapy is now looked at as a means to maximize the patient's available functioning speech. This may include exercise to restore muscular activity; activities such as vibration, electric

stimulation, or stroking with ice to facilitate a sensory response; and the use of alternative methods of communication such as gesture or communication boards. With the use of these techniques, it is possible for some patients to gain confidence in communicative situations and increase their motivation to maintain communicative abilities as much as possible within the limits of the disease as it progresses.

#### Dementia-Alzheimer's Disease

Dementia or senile dementia is a term used to refer to a syndrome characterized by acquired, persistent intellectual impairment involving at least three of the following areas of mental activity: language, memory, visuospatial abilities, emotion, personality, and cognition (Cummings, 1985). Prevalence figures for dementia range from 4.2 to 15 percent in the elderly population and go up to 50 to 63 percent in the institutionalized elderly population (Maurer, 1984). The syndrome has a variety of causes. Some of these are treatable such as dementia resulting from drug reactions, infections, and metabolic disorders (Zarit et al., 1985). Others, however, are currently irreversible.

The most common type of irreversible illness involving dementia is senile dementia of the Alzheimer's type, which is more commonly known as Alzheimer's disease. Alzheimer's disease accounts for between 50 to 60 percent of cases of dementia (Maurer, 1984; Zarit et al., 1985). The ultimate cause of the disease involves specific changes in the brain so that Alzheimer's disease can only be definitively identi-

fied during autopsy. These include changes in and general loss of brain neurons. Changes such as these are found not at all or only to a limited degree in normal aging (Zarit et al., 1985). The cause of these changes is not known and there is no known cure.

These alterations in the neurons of the brain produce the three aspects of change occurring in dementia including behavioral, affective, and cognitive elements. Behavioral changes may include wandering, restlessness, aggression, hostility, and incontinence. Affective changes may include anxiety, agitation, and depression. However, the most recognizable and well-known changes are cognitive. One of these is memory failure which is the prominent feature of dementia (Gilleard, 1984).

This forgetfulness takes many forms and determining where exactly the memory problem lies is a point of controversy among researchers. There may be a failure of new information to reach permanent storage. A retrieval deficit is also likely which may influence retrieval of new information. This also accounts for the failure to recall events from the past which were adequately stored in the first place. Other difficulties include labeling new information, acquiring information, failure to relate here and now with the recent and remote past, negative errors such as failure to recall a name or something that was just said or done, and positive errors such as a belief that one's mother is still alive (Gilleard, 1984).

These elements of dementia can be seen in the phases of Alzheimer's that Cummings (1985) lists. The first phase involves reduced information content in spontaneous speech, inability to name objects (anomia), and memory and visuo-spatial changes. Phase two involves language output similar to that seen in aphasia; comprehension, naming and reading impairments; and impaired judgement and cognitive abilities. In the final stage language output is reduced often to mutism, all intellectual functions are severely impaired, and death follows immobility and incontinence. This process varies in duration from patient to patient, but death usually occurs four to five years after onset although some live up to ten years or more (Zarit et al., 1985).

From these stages it is easy to identify communication difficulties that result from Alzheimer's disease as well as other dementias. These may also be complicated by visual, auditory, or motor impairments as well. The important first step in dealing with dementia is correct diagnosis so that reversible disorders receive treatment. Individual assessment of problems and the possibilities for dealing with them is then necessary since there is wide variation from one patient to another (Zarit et al., 1985).

It is necessary to realize that senility is the result of organic brain disease and is not a problem common to all elderly. This will lead to a more thorough and thoughtful interaction between the elderly and their care givers and family.



## Head and Neck Pathology

Several head and neck pathologies associated primarily with the larynx such as vocal nodules, polyps, contact ulcers, and vocal fold paralysis, may occur among the elderly (Maurer, 1984). Traumatic injury or a fall may also be responsible for some head and neck problems that may result in communication disorders. These conditions can indeed have an affect upon the individual due to their affect upon communicative ability, but no head/neck pathology has as great an impact for as many people as cancer of the larynx.

### Laryngectomy

Laryngeal cancer has a high rate of cure assuming the individual is alert to changes in his voice. The most notable symptom is that of a persistently rough or hoarse voice (Van Riper & Einerick, 1984). Often these early warning signals go unnoticed or ignored and removal of the larynx (or laryngectomy) is necessary. The laryngectomized population is an aging one with an average age of 55 for individuals having undergone the surgery (Maurer, 1984). Van Riper and Einerick (1984, p. 342) indicate that

. . .there are approximately 40,000 surviving laryngectomees in the United States at any given point in time; and each year, more than 9,000 individuals undergo surgery for removal of their larynges.

This surgery has a devastating affect upon the individual (see figure 5, Appendix A, page 32 for a diagram of the structures of the neck after laryngectomy).

After laryngectomy the patient now breathes through the

opening in his neck called a stoma, he can not blow his nose, he will not be able to taste food normally for a while, he has difficulty lifting since he cannot squeeze off air to fixate his chest, and he must be careful not to allow water into his stoma. But, with all of these problems, the sudden loss of voice is the most devastating (Van Riper & Einerick, 1984). Through speech therapy and medical intervention, he can however, learn to speak again.

Basically the laryngectomized individual has three options for gaining a new voice: an electrolarynx, esophageal speech, or the relatively new tracheoesophageal puncture technique. These first two methods are explained by Van Riper and Einerick (1984). The electrolarynx is a device that has a buzzing diaphragm which produces the sound source on which speech is articulated. The instrument is held against the neck then the sound source can be turned into usable speech when the individual articulates. In order that full potential with the instrument can be reached, a speech therapist is often necessary.

Esophageal speech is produced on swallowed air trapped in the esophagus that is articulated into speech when it is allowed to escape. This method of speech takes many sessions with a speech therapist to master. "An understanding clinician can make the difference between success and failure" (Van Riper & Einerick, 1984).

Tracheoesophageal puncture involves a minor surgery to make an opening through the back wall of the windpipe and into the throat. A valve is then worn in the puncture open-

ing at all times. A diagram showing the positioning of this valve is in Appendix A, Figure 6, page 33 . Voice is produced by blocking the stoma so that air exhaled from the lungs can go through the valve and into the throat, allowing the patient to produce speech (Singer & Blom).

Loss of voice through laryngectomy can be very traumatic due to the sudden loss of the primary source of communication. The individual now may feel totally cut off from those around him. Patience and support are necessary from family and care givers in order to motivate the patient to learn to use a new voice.

## CONSIDERATIONS IN SUCCESSFUL INTERACTION

Producing guidelines for increasing communicative effectiveness within the context of the aging process is a difficult task due to the diversity of the elderly population. Lancer (1984) states that older people become more diverse instead of more similar as they get older. This could lead to a situation where guidelines for one individual would be inappropriate for another, even if they are both of the same age.

It is important then that those dealing with older individuals who may be communicatively impaired be flexible in their interactions. They must also be knowledgeable about age related physical changes that affect communication skills and communication barriers that may get in the way of interaction (Dancer, 1984). With this knowledge and flexibility care givers and family members can adapt guidelines to each individual's particular unique needs.

In the first sections of this paper, a variety of physical changes were discussed that may accompany aging and affect communication. When approaching a communicative situation with an elderly individual, one should not assume that a problem exists but should assess for any lack of communicative ability. Pepper (1982) lists some simple things to look for that may

give clues to communicative effectiveness:

Visual Reception:

Does the patient wear glasses?

Can he see out of both eyes?

Visual Perception:

Can he differentiate basic shape, color,  
and size?

Visual Association:

Can he match the printed name with an  
object?

Can he match related objects?

Touch:

Is touch affected by peripheral nerve  
and spinal injury?

Can the patient detect touch, pressure,  
pain?

Verbal Output or Expression:

Is there a hemiplegia present?

Are his teeth or dentures in good shape?

It is important to remember that more than one age-related problem may exist and complicate communication further.

Because one problem is evident does not mean we should not look for others which may be "hidden" such as hearing loss.

The communicative situation is an interaction between two people and this is important to remember because there may be factors within the care giver or family member himself that are further complicating the communicative situation.

Dancer (1984, p. 174) lists five negative ways we may react to the elderly:

1. We may react emotionally to our own feelings of aging and death;
2. We may feel threatened or discouraged by the older person's lack of motivation;
3. We may want to return to work with younger or middle-aged persons who have a "future;"
4. We may feel threatened by the emotional demands of the older person;
5. We may see the person as senile, inflexible, intolerant, talkative, mentally ill, hypochondriacal, and so forth.

Likewise the older person may himself harbor negative attitudes such as these about himself and his capabilities. It

is important that these feelings be overcome to increase communication effectiveness that may already be impaired by physical limitations.

Finally, once the caregiver or family member knows what physical problems exist as well as what factors exist within himself that could possibly be affecting the communicative situation, some simple guidelines can be given to help increase communicative effectiveness. While these suggestions by Dancer (1984, pp. 180-181) may seem obvious to professionals in communicative disorders, they may not have occurred to family members and non-professional care givers.

- Get the person's attention before beginning to talk
- Talk in a face-to-face manner with the person
- Make sure the lighting is appropriate
- Speak a little louder and a little more slowly
- Make questions or statements simple and straightforward and rephrase, rather than repeat, if necessary
- Allow the person more time to respond
- Avoid distracting or noisy backgrounds
- If you are not sure that the person understands, ask a verification question
- Use assistive communication devices if necessary i.e. hearing aids, communication boards
- Above all, ask the person what helps most in communication

"These suggestions are easy, simple to use and can mean the difference between success and failure in any given communication situation" (Dancer, 1984, p. 180). When used in combination with education about the physical changes that may accompany aging and their affect on communication, better interaction is possible between the elderly and their care givers and family members.

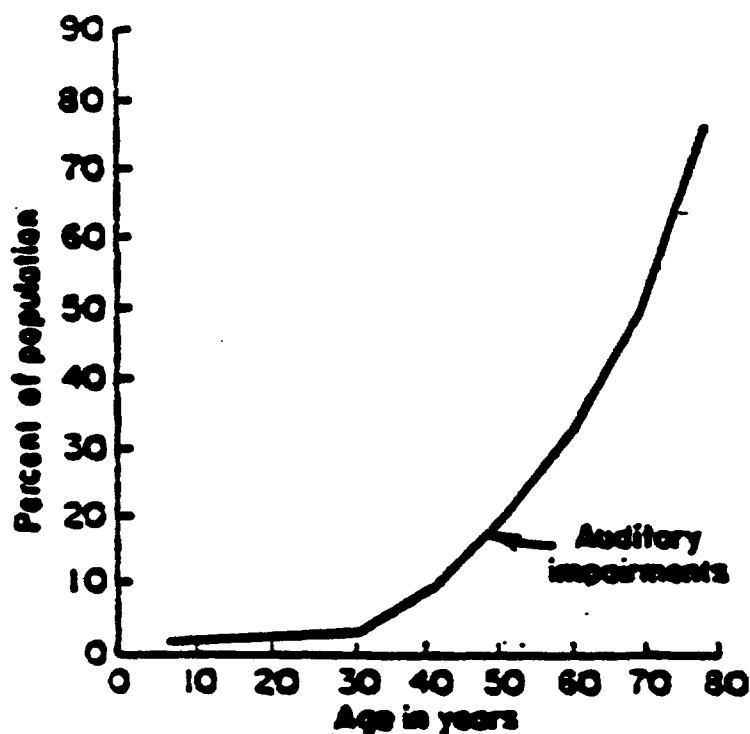
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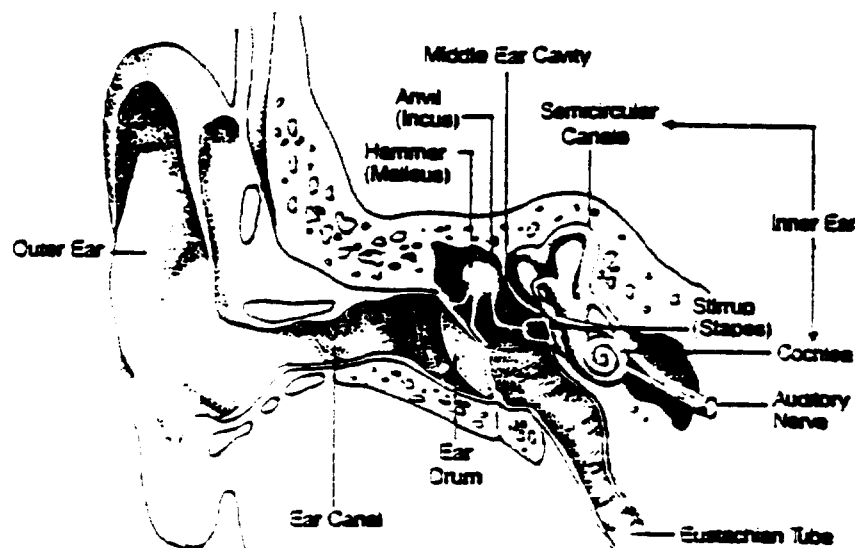
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## APPENDIX A

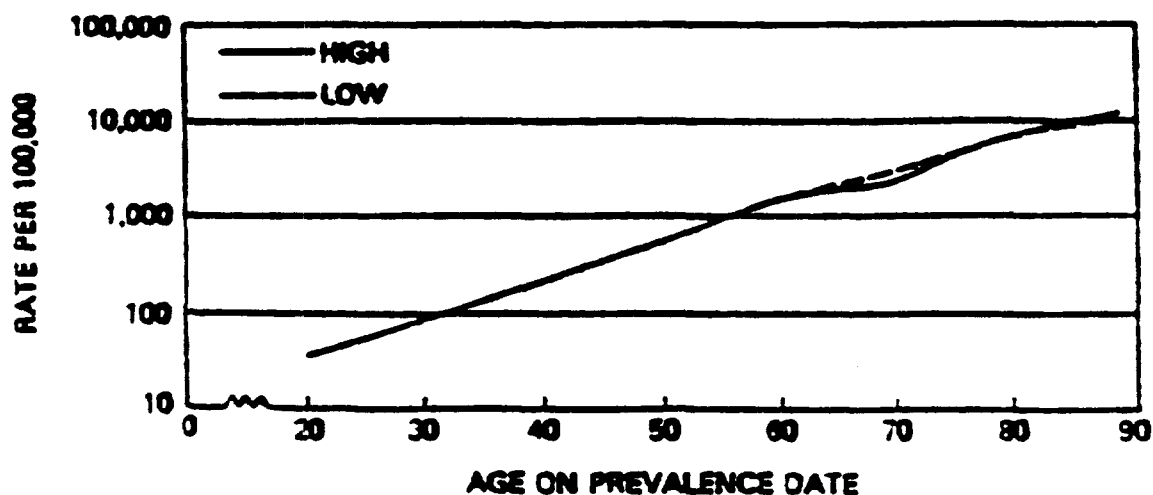
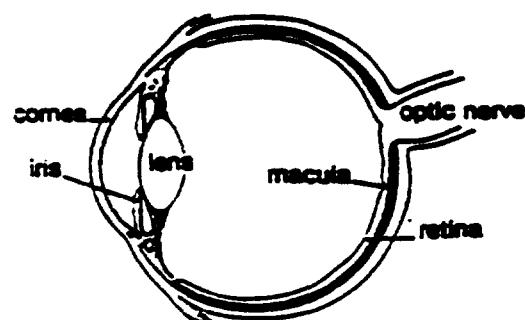


\*Figure 1. Percentage of persons in U.S. with auditory impairments, ages 6-79 years. From Maurer, James F., 1984. Introduction. In Linda Jacobs-Condit (Ed.), Gerontology and communication disorders. Rockville Maryland, American Speech-Language-Hearing Association, p. 16.

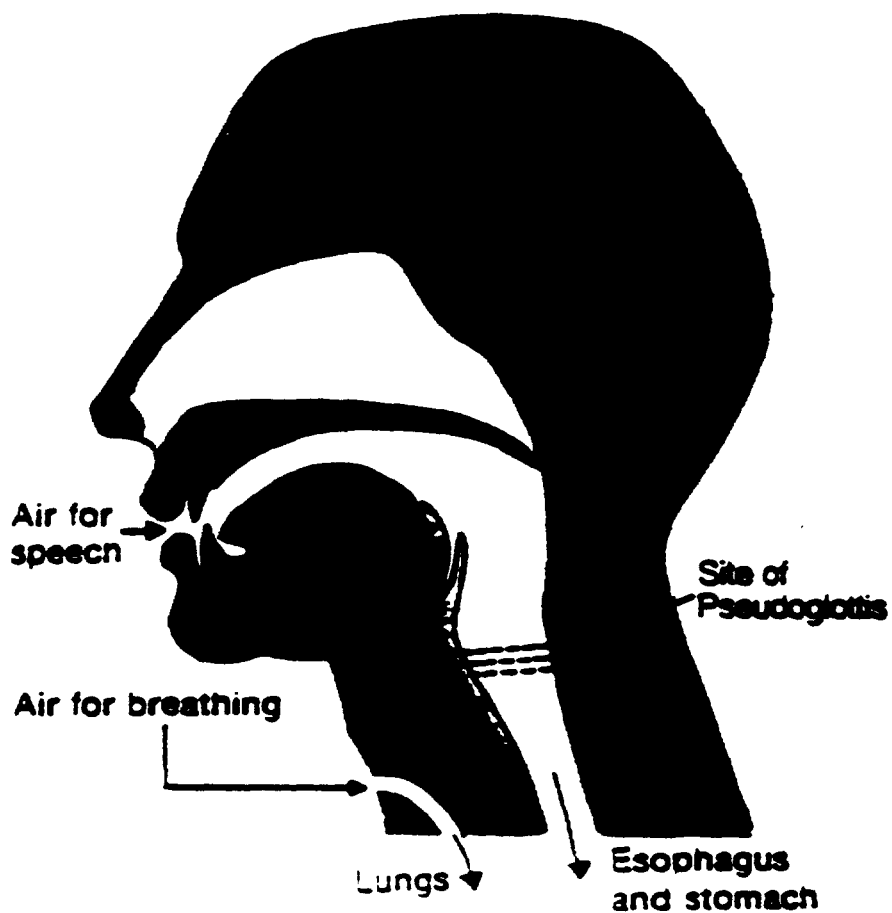


\*Figure 2. Cross-section of the ear. From Van Riper, Charles & Emerick, Lon, 1984. Speech correction: An introduction to speech pathology and audiology. Englewood cliffs, N.J., Prentice-Hall, p. 405.

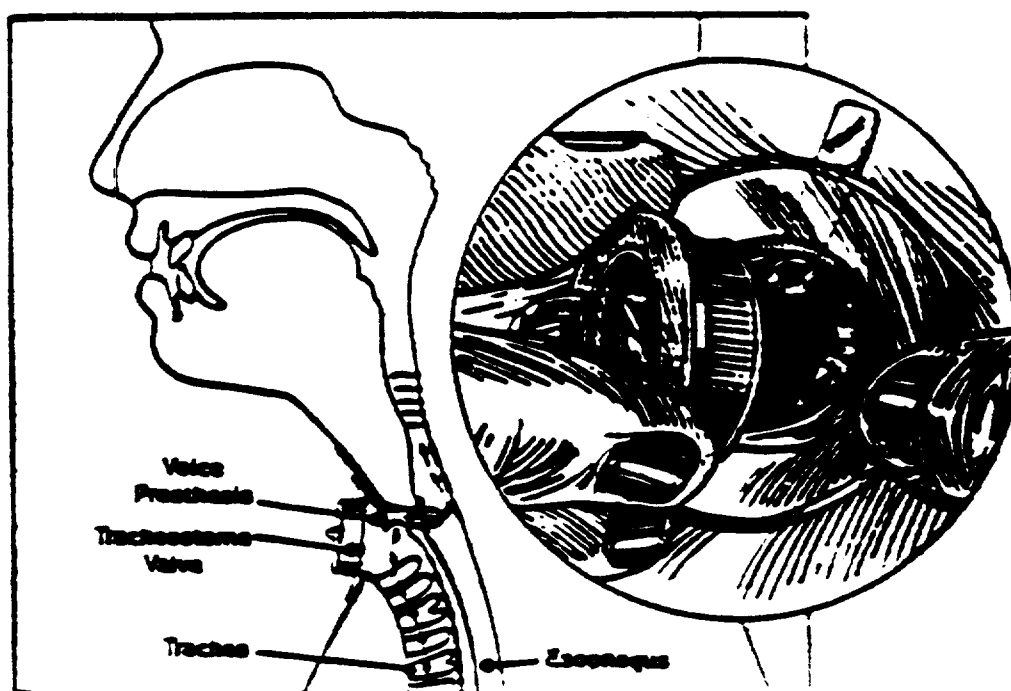
\*Figure 3. Diagram of the eye. From Jacobs-Condit, Linda & Ortenzo, Mary L., 1984. Physical changes in aging. In Linda Jacobs-Condit (Ed.), Gerontology and communication disorders. Rockville, Maryland, American Speech-Language-Hearing Association, p. 52.



\*Figure 4. Prevalence of stroke by age in the U.S. From Maurer, James F., 1984. Introduction. In Linda Jacobs-Condit (Ed.), Gerontology and communication disorders. Rockville Maryland, American Speech-Language-Hearing Association, p. 17.



\*Figure 5. Structures of the head and neck after laryngectomy. From Van Riper, Charles & Emerick, Lon, 1984. Speech correction: An introduction to speech pathology and audiology. Englewood cliffs, N.J., Prentice-Hall, p.394.



\*Figure 6. Voice prosthesis and tracheostoma valve used in the tracheoesophageal puncture. From Singer, Mark I., & Blom, Eric D. The puncture technique for post-laryngectomy voice rehabilitation. Indianapolis, Indiana, Head and Neck Surgery Associates.

## APPENDIX B

## AUGMENTATIVE COMMUNICATION DEVICES

### TELEVISION/RADIO

#### Hardwire Systems

- earphones/stethoscope headset
- snap on earplug
- personal hearing aid, direct-input

#### Induction Loop Systems

- neck loop
- personal portable loop
- room size loop

#### Infrared Systems

- earphones
- hearing aid , direct-input

#### FM/AM Wireless Systems (FM)

- earphones/stethoscope headset
- personal hearing aid via induction loop

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## GUIDELINES FOR SUCCESSFUL INTERACTION

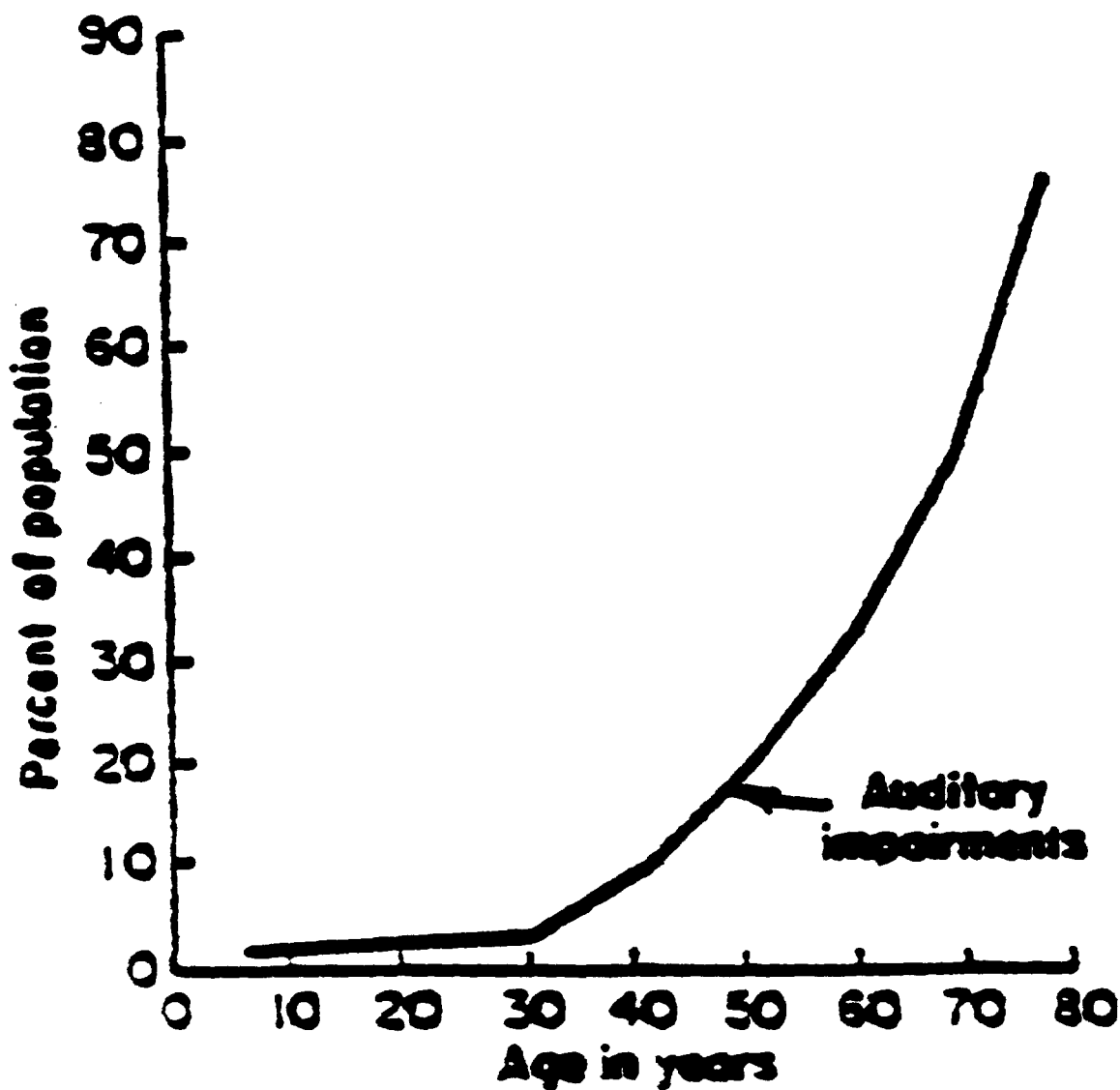
- Get the person's attention before beginning to talk
- Talk in a face-to-face manner with the person
- Make sure the lighting is appropriate
- Speak a little louder and a little more slowly
- Make questions or statements simple and straight-forward and rephrase, rather than repeat, if necessary
- Allow the person more time to respond
- Avoid distracting or noisy backgrounds
- If you are not sure that the person understands, ask a verification question
- Use assistive communication devices if necessary  
i.e. hearing aids, communication boards
- Above all, ask the person what helps most in communication

From Dancer, Jess, 1984. General considerations in the management of older persons with communication disorders. In Linda Jacobs-Condit (Ed.), Gerontology and communication disorders. Rockville, Maryland, American Speech-Language-Hearing Association, pp. 180-181.



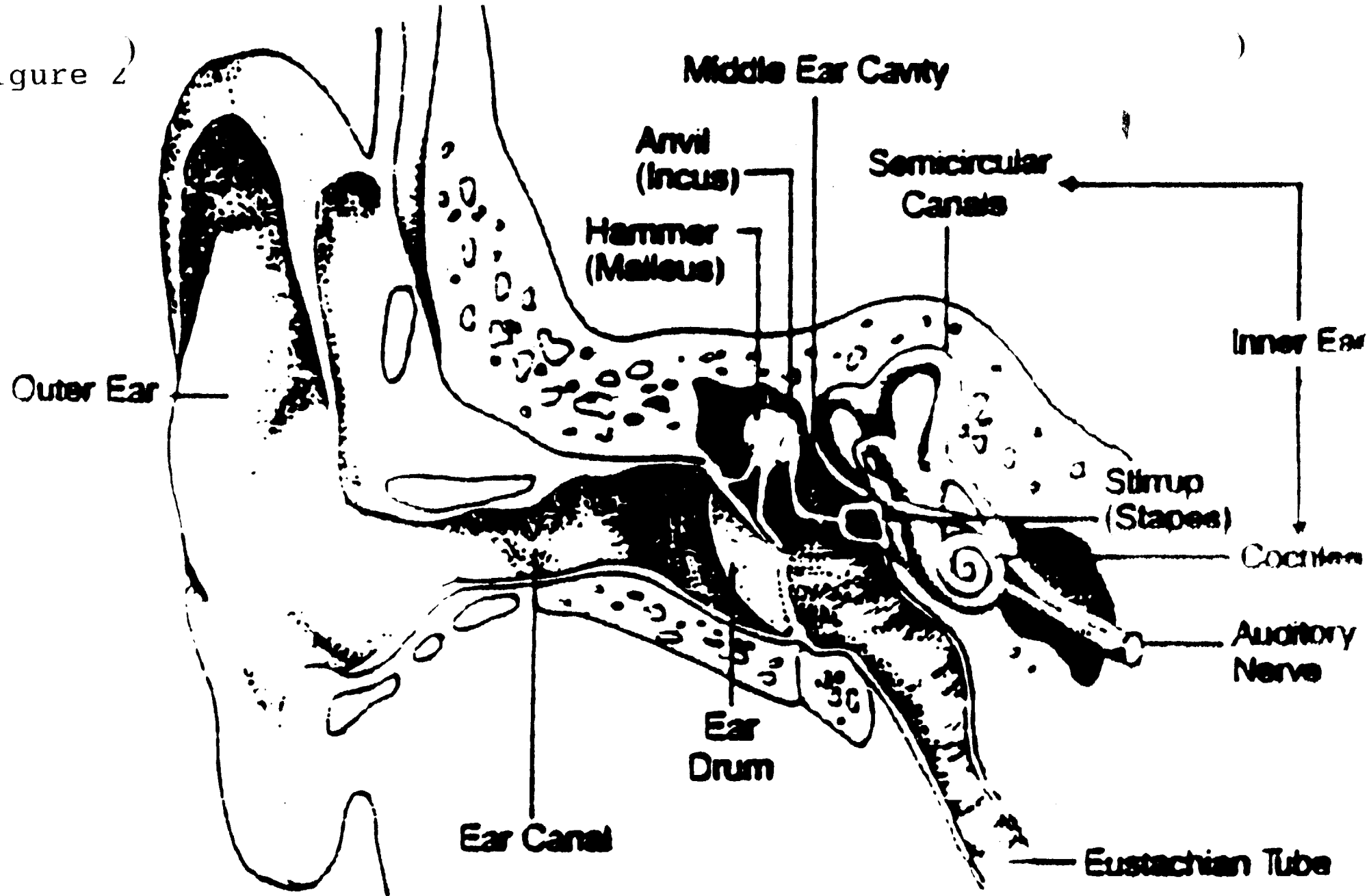
APPENDIX C

Figure 1



Percentage of persons in U.S. with auditory impairments, ages 6-79 years. From Maurer, James F., 1984. Introduction in Linda Jacobs-Cendit (Ed.), Gerontology and communication disorders. Rockville Maryland, American Speech-Language-Hearing Association, p. 16.

Figure 2



Cross-section of the ear. From Van Riper, Charles & Emerick, Lon, 1984. Speech correction: An introduction to speech pathology and audiology. Englewood cliffs, N.J., Prentice-Hall, p. 405.

Figure 3

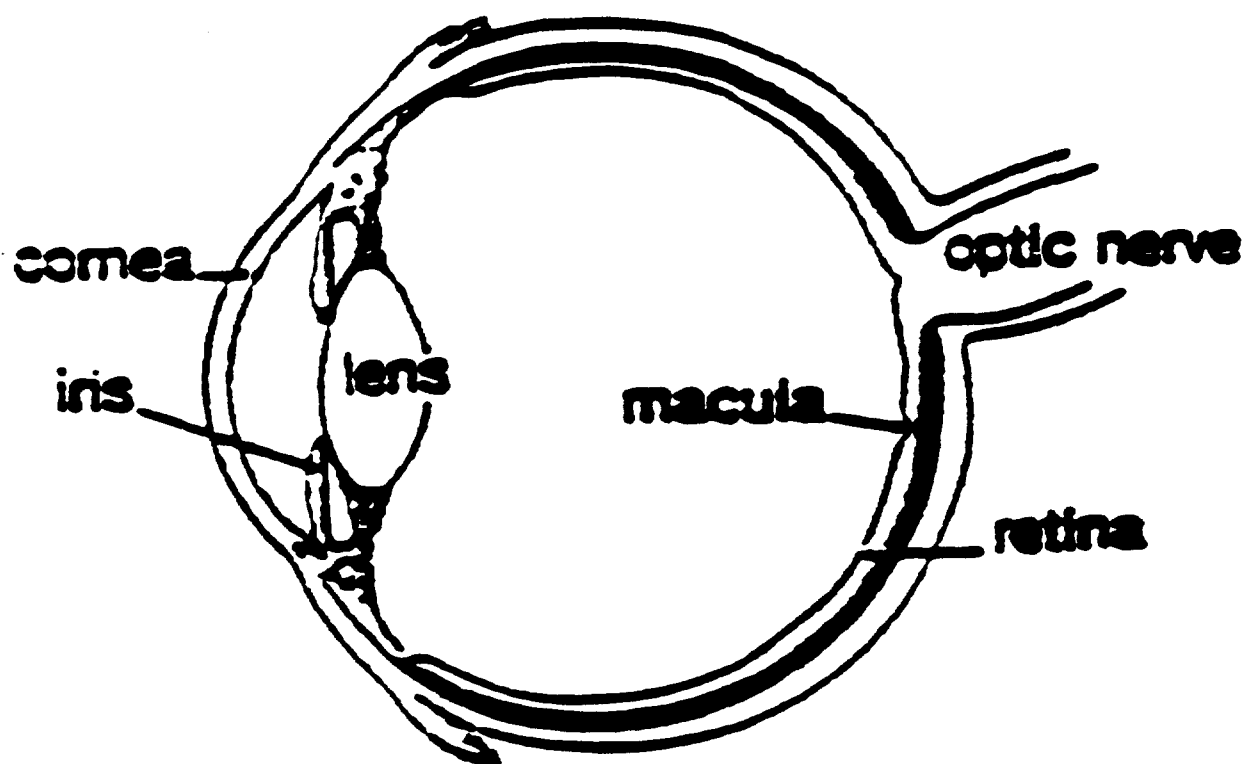
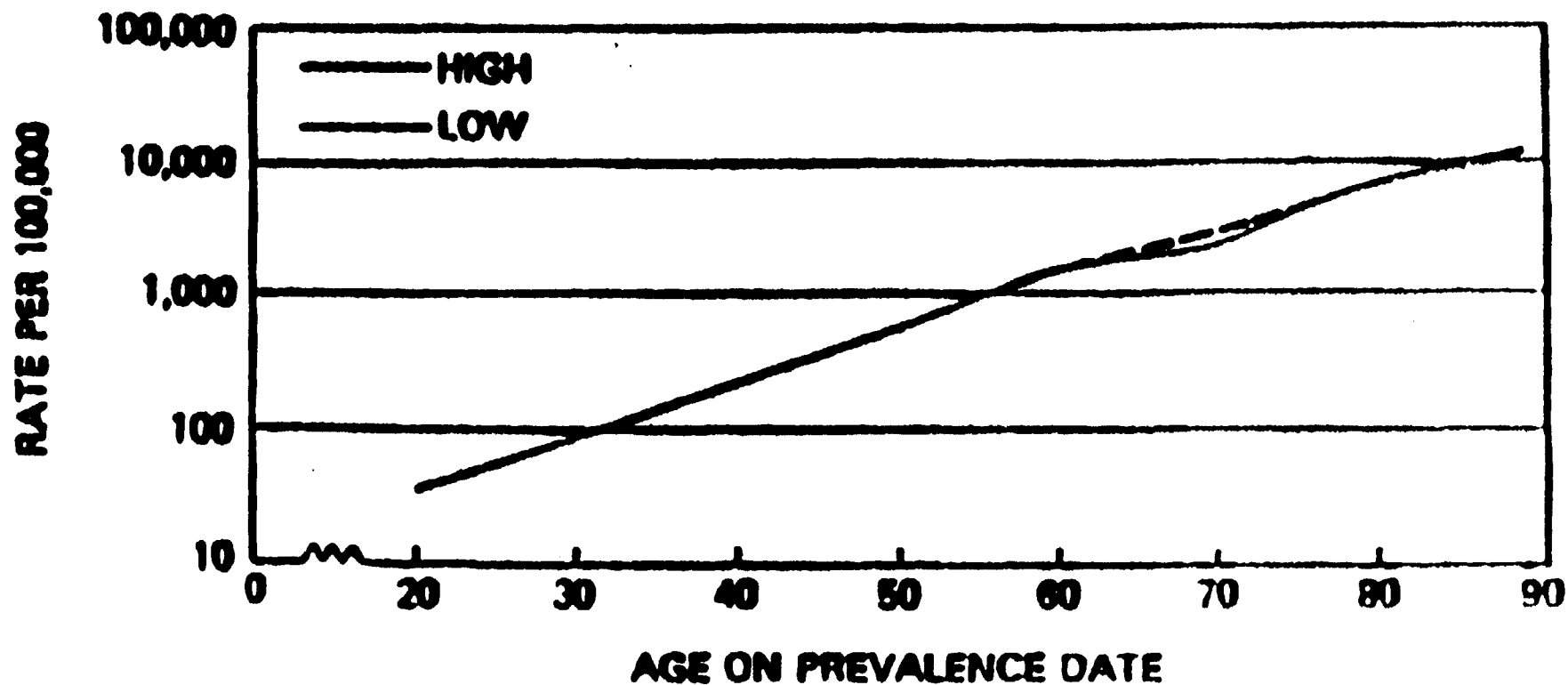


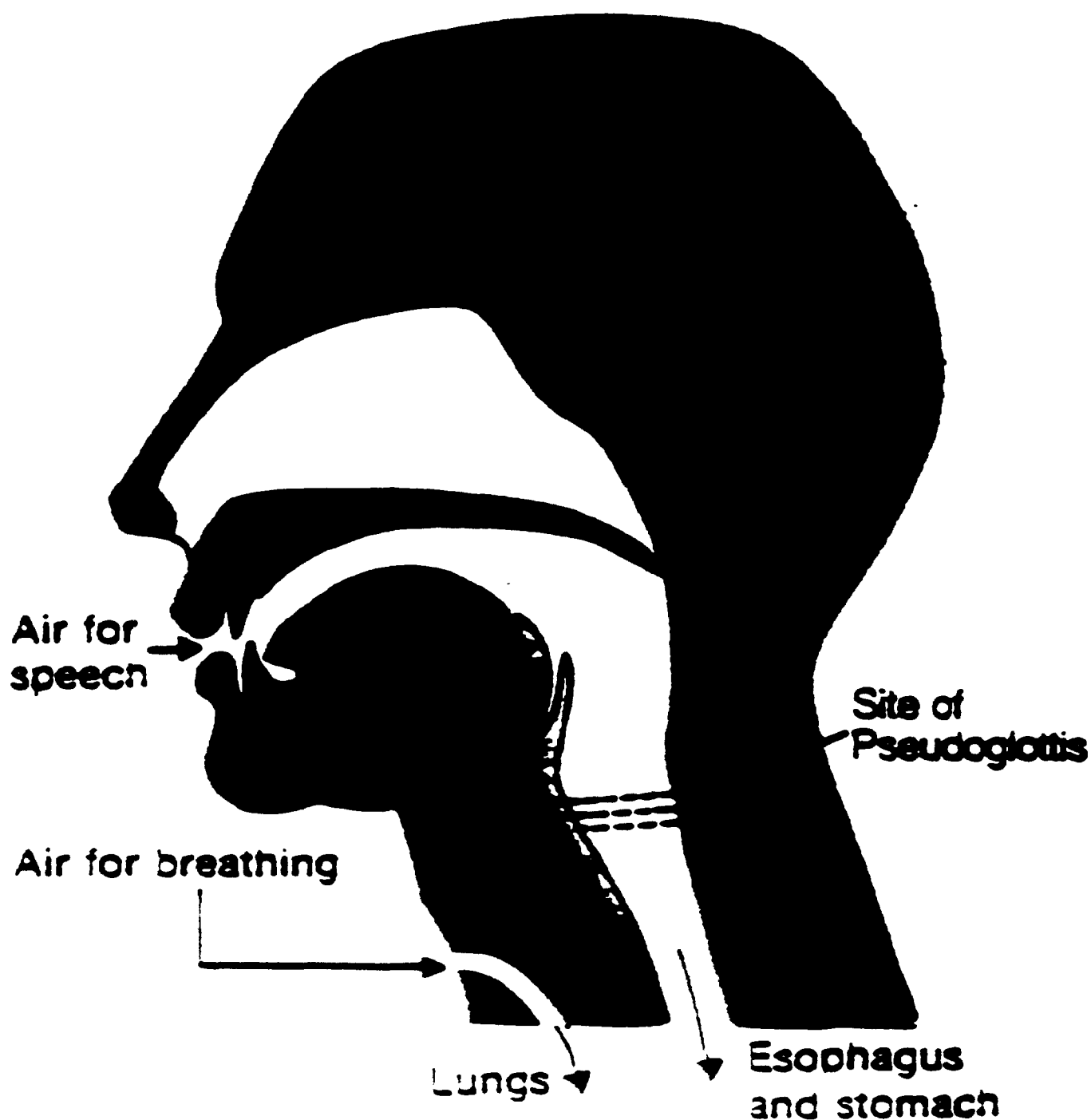
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Figure 4



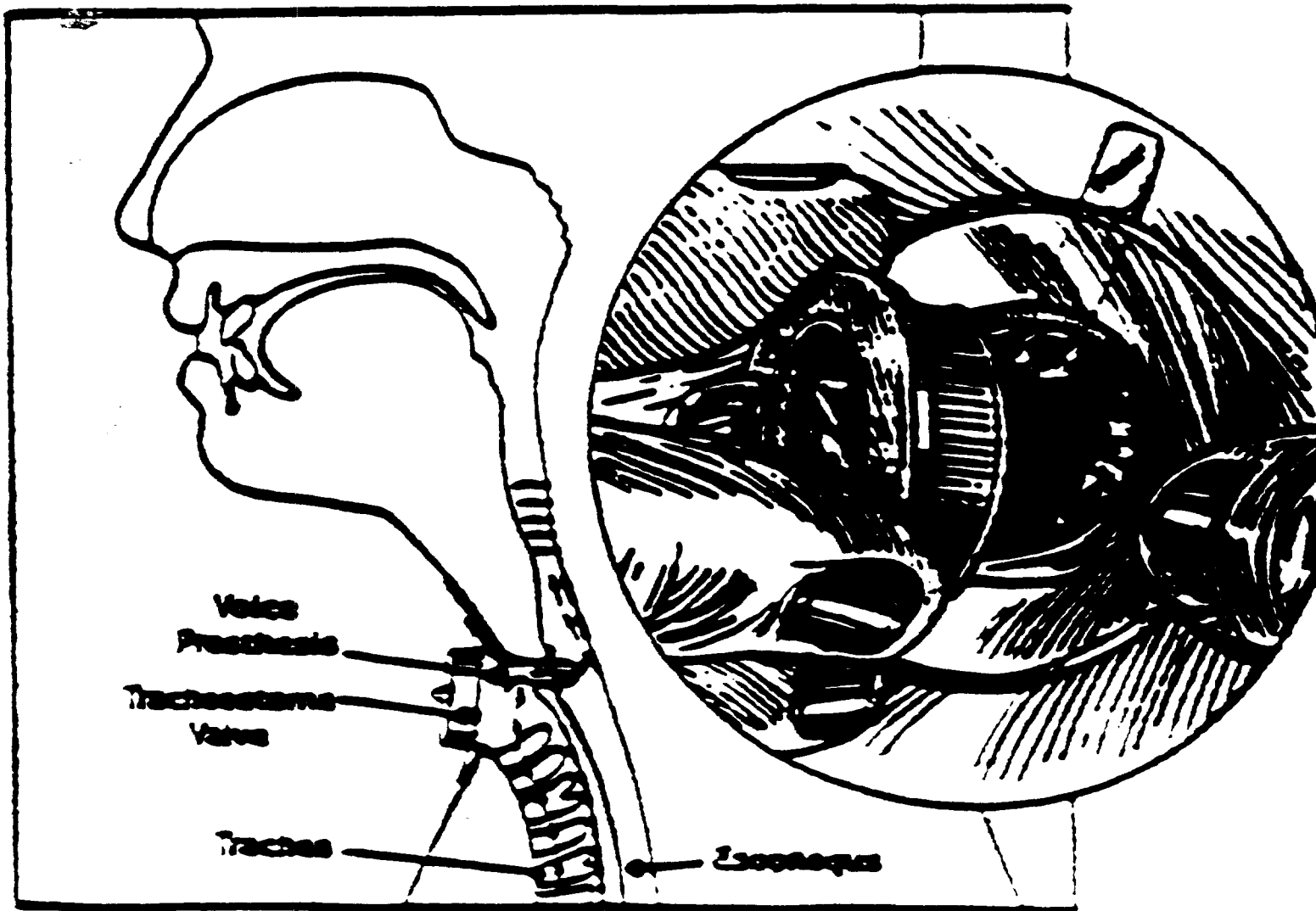
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Figure 5



Structures of the head and neck after laryngectomy. From Van Riper, Charles & Emerick, Lon, 1984. Speech correction: An introduction to speech pathology and audiology. Englewood cliffs, N.J., Prentice-Hall, p. 394.

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Voice prosthesis and tracheostoma valve used in the tracheoesophageal puncture. From Singer, Mark I., & Blom, Eric D. The puncture technique for postlaryngectomy voice rehabilitation. Indianapolis, Indiana, Head and Neck Surgery Associates.